**Feasibility Determination: Noise Study Report**

A Noise Study Report (NSR) was completed in January 2010 that analyzed traffic noise impacts along I-5 from Carmel Valley Road to 0.7 miles north of Del Mar Heights Road and along SR 56 from I-5 to 0.4 miles east of Carmel Country Road. A total of 351 residences were included in the study. This report determined the feasibility of noise abatement features. Noise abatement is considered to be feasible if it reduces noise levels by at least 5 dBA. Noise abatement is warranted when the future predicted design-year noise levels approach or exceed the Noise Abatement Criteria (NAC). The NAC for residential areas is 67 dBA at exterior locations. Equivalent noise levels for common outdoor and indoor activities are shown in Table 1.

**Table 1: Typical Noise Levels**

| Common Outdoor Activities | Noise Level (dBA) | Common Indoor Activities |
|---|---|---|
| | **-110-** | Rock band |
| Jet fly-over at 1000 feet | | |
| | **-100-** | |
| Gas lawn mower at 3 feet | | |
| | **-90-** | |
| Diesel truck at 50 feet at 50 mph | | Food blender at 3 feet |
| | **-80-** | Garbage disposal at 3 feet |
| Noisy urban area, daytime | | |
| Gas lawn mower, 100 feet | **-70-** | Vacuum cleaner at 10 feet |
| Commercial area | | Normal speech at 3 feet |
| Heavy traffic at 300 feet | **-60-** | |
| | | Large business office |
| Quiet urban daytime | **-50-** | Dishwasher next room |
| Quiet urban nighttime | **-40-** | Theater, large conference room (background) |
| Quiet suburban nighttime | | |
| | **-30-** | Library |
| Quiet rural nighttime | | Bedroom at night, Concert hall (background) |
| | **-20-** | |
| | | Broadcast/Recording studio |
| | **-10-** | |
| Lowest threshold of human hearing | **-0-** | Lowest threshold of human hearing |

Noise levels were analyzed for the existing condition and the future No Build and Build alternatives. The results of the NSR showed that proposed noise barriers ranging in height from approximately 8 to 16 feet would reduce the noise levels by at least 5 dBA at many residences. Based on the Federal Highway Administration (FHWA)/ California Department of Transportation (Caltrans) Noise Abatement Criteria, noise barriers are preliminarily considered feasible along I-5 and SR 56. Six noise barriers are common to all build alternatives.

**Reasonableness Determination: Noise Abatement Decision Report**

A Noise Abatement Decision Report (NADR) was completed in April 2010. The NADR determines the reasonableness of the noise abatement feature. The reasonableness determination

is made by calculating an allowance that is considered to be a reasonable amount of money, per benefited residence, to spend on abatement. This reasonable allowance is then compared to the engineer's cost estimate for the abatement. If the engineer's cost estimate is less than the allowance, the determination is that the abatement is reasonable. If the engineer's cost estimate is higher than the allowance, the determination is that abatement is not reasonable. In order for a noise barrier to be considered for construction, it must be both feasible and reasonable.

**Summary of Results**

A comparison of the noise impacts for each alternative is shown in Table 3. The No Build Alternative assumes the construction of the North Coast Project along I-5. A residence is considered to be impacted if the predicted noise level approaches or exceeds the NAC (67 dBA). In some locations, severe noise impacts are anticipated. A severe noise impact is considered to occur when the predicted exterior noise levels equal or exceed 75 dBA.

**Table 3: Summary of Noise Impacts**

| | Not Impacted | Impacted | Severely Impacted |
|---|---|---|---|
| Existing (2007) | 61% | 37% | 2% |
| No Build (2030)[1] | 55% | 44% | 1% |
| Direct Connector (Alt 2)[2] | 69% | 31% | 0% |
| Auxiliary Lane (Alt 3)[2] | 70% | 30% | 0% |
| Hybrid (Alt 4)[2] | 68% | 32% | 0% |
| Hybrid with Flyover (Alt 5)[2] | 64% | 36% | 0% |

[1]Assumes North Coast Project roadway improvments; it does not include noise abatement features.
[2]Assumes construction of noise abatement features.

The No Build Alternative assumes the construction of the North Coast Project roadway improvements along I-5; it does not assume the construction of the North Coast Project noise barriers. The North Coast Project noise barriers were not included in the No Build Alternative improvements because the noise barriers have not been approved through the environmental process. The percentage of severely impacted residences would decrease with the construction of the North Coast Project (No Build Alternative) and for each Build Alternative of the I-5/SR 56 Interchange project due to the construction of large retaining walls that are proposed along I-5. The proposed retaining walls would shield traffic noise from many of the neighboring residences. The percentage of impacted residences would decrease for each Build Alternative with the construction of the proposed noise barriers as compared to the existing and No Build conditions.

Noise barriers are preliminarily recommended at nine locations for the Direct Connector (Alt 2) and seven locations for the Auxiliary Lane (Alt 3), Hybrid (Alt 4), and Hybrid with Flyover (Alt 5). The attached exhibits show the number of residences who would benefit from the proposed noise barriers and the preliminary cost estimate for the proposed noise barriers. Individual abatement may be provided for severely impacted residences if the noise barrier is deemed not constructible.